

## Training Course

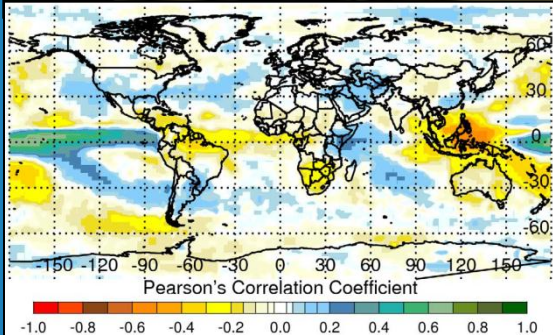
Field situation: how to safely  
collect oral swabs (saliva)  
from deceased patients  
suspected to be infected with  
Ebola

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Pandemic and Epidemic Diseases (HSE/PED) department



World Health  
Organization



# COURSE

## Field Situation :

How to safely

collect oral swabs (saliva)

from deceased patients

suspected to be infected with

Ebola

in 5 STEPS

# Oral Swab collection of Ebola Patient in 5 steps

- 1. Step 1. Assemble all equipment before entering patient room**
- 2. Step 2. Put on all personal protective equipment (PPE)**
- 3. Step 3. Collect oral swab from deceased patient**
- 4. Step 4. Prepare VTM collection tube for transport**
- 5. Step 5. Remove personal protective equipment (PPE) and manage waste**

# **Oral swab collection of Ebola patient in 5 steps**

## **Step 1**

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**Before entering the patient room, assemble all equipment.**

# Step 1/5: Assemble the equipment

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- a. Assemble equipment for collecting oral swabs**
- b. Assemble equipment for preventing infections**
- c. Fill out patient documentation**

# Step 1a: Assemble equipment for collecting oral swabs

- Viral transport medium (VTM) collection tubes stored at 4°C or room temperature



- Individually wrapped sterile swabs with break point



- Plastic leak-proof primary container



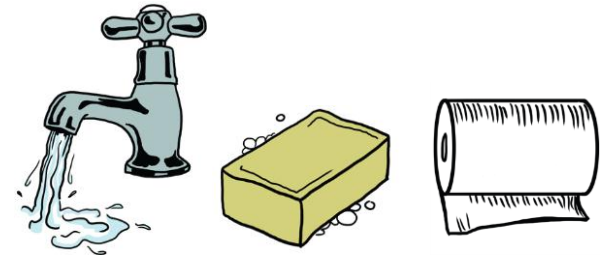
- Waterproof marker



# Step 1b: Assemble equipment for preventing infections (1)

## For Hand Hygiene:

- Alcohol-based handrub (recommended)
- OR Clean, running water; Soap; Disposable (paper) towel (recommended)

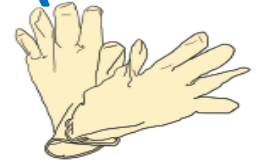


- OR Chlorine solution 0.05% (when option above are not available)

# Step 1b: Assemble equipment for preventing infections (2)

## Personal Protective Equipment (PPE) - 1:

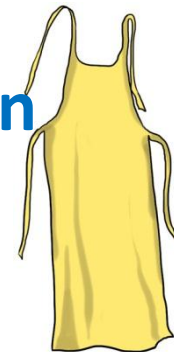
Several pairs of disposable examination gloves (non-sterile, ambidextrous, single layer)



✓ One pair of gloves for sample collection

✓ One additional pairs as a replacement if they become damaged or contaminated

Disposable coverall suit and plastic apron



Face Protection: Mask and goggles





# Step 1b: Assemble equipment for preventing infections (3)

## Personal Protective Equipment (PPE) - 2:

**Footwear:** wear rubber boots or shoes with puncture-resistant soles with disposable overshoes secured around the shoes to prevent direct contact with ground and infected bodily fluid spills



# Step 1b: Assemble equipment for preventing infections (4)

## Disinfectant and waste management materials:

- ❑ Leak-proof and puncture resistant sharps container
- ❑ Two leak-proof infectious waste bags: one for disposable materials (**destruction**) and one for reusable materials (**disinfection**)



Waste bag for  
destruction



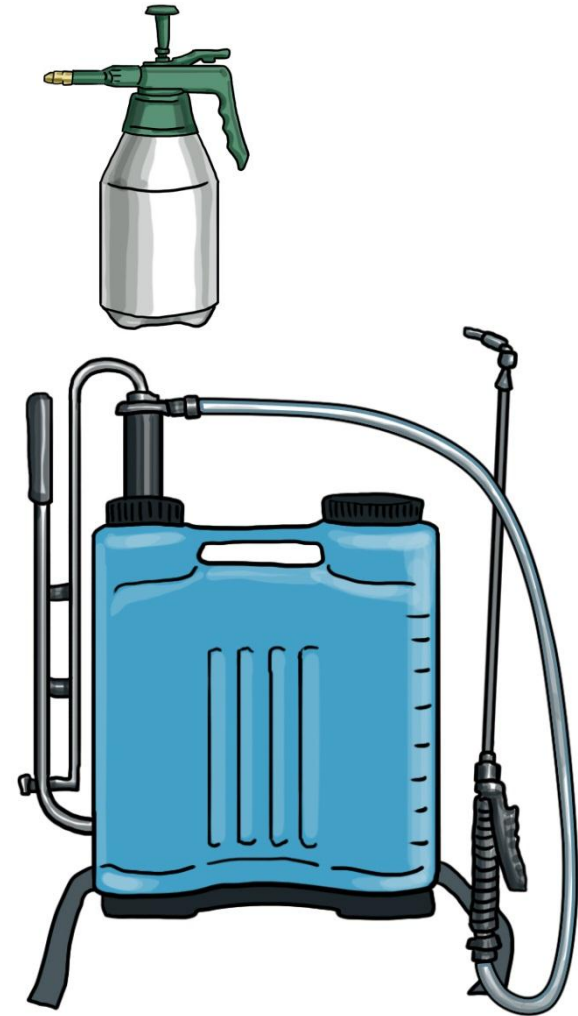
Waste bag for  
disinfection



## Step 1b: Assemble equipment for preventing infections (5)

Disinfectant solutions must be prepared for the same day:

- **0.05% chlorine solution for hand hygiene in a Hand sprayer**
- **0.5% chlorine solution for disinfection of object and surfaces in a Back sprayer**



# Step 1c: Fill out patient documentation

- Label VTM collection tubes** with date of collection, patient name, and his/her identifier number



- Do NOT forget to fill out necessary laboratory form and epidemiological questionnaire**
- If several patients have to be sampled in the same place or during the same investigation, create a line list.** One patient per line. The list should include: patient name, identifier number, sex, age (birthdate), clinical information: symptoms, date of onset, date specimen was collected, type of sample taken.

# **Oral swab collection of Ebola patient in 5 steps**

## **Step 2**

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**Put on all personal protective equipment (PPE).**

## Step 2/5: Put on all PPE

**DO NOT ENTER THE PATIENT AREA IF YOU DO NOT HAVE ALL PROTECTIVE GEAR ON**

- a. Perform hand hygiene**
- b. Put on boots, coverall suit and plastic apron**
- c. Put on face protection**
- d. Hood up**
- e. Put on gloves (over cuff)**

## Step 2a: Perform hand hygiene

### Alcohol-based handrub (recommended)

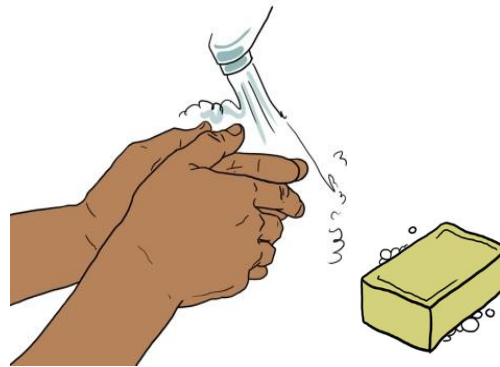
Duration of the entire procedure :

**20-30 seconds**

### OR Clean, running water; Soap; Disposable (paper) towel (recommended)

Duration of the entire procedure :

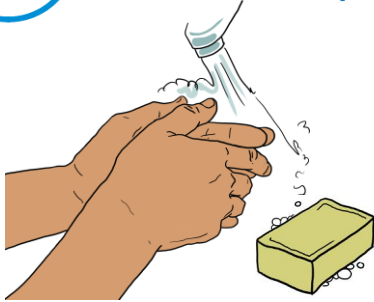
**40-60 seconds**



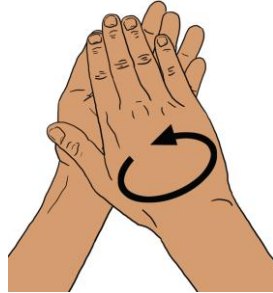
### OR Chlorine solution 0.05% (when option above are not available)

# Step 2a: Perform hand hygiene

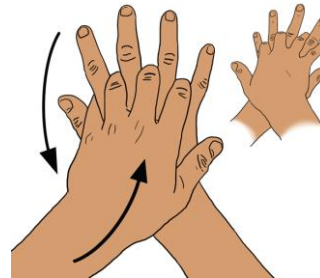
**Duration of the entire procedure: 40-60 sec if hand washing with soap and water; 20-30 sec, if hand rubbing with an alcohol-based solution.**



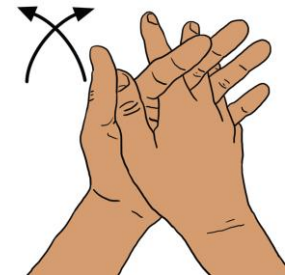
Wet hands with water and enough soap to cover all hand surfaces.



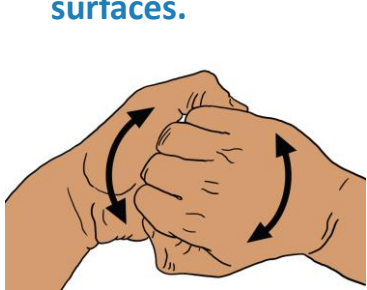
Rub hands, palm to palm,



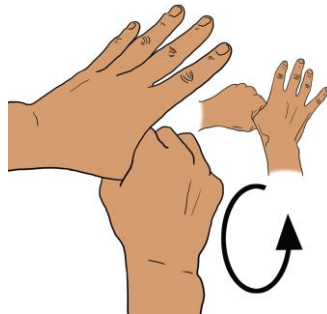
Right palm over left dorsum with interlaced fingers and vice versa,



Palm to palm with fingers interlaced,



Back of fingers to opposing palms with fingers interlocked



Rotational rubbing of left thumb clasped in right palm and vice versa,



Rinse hands with water.

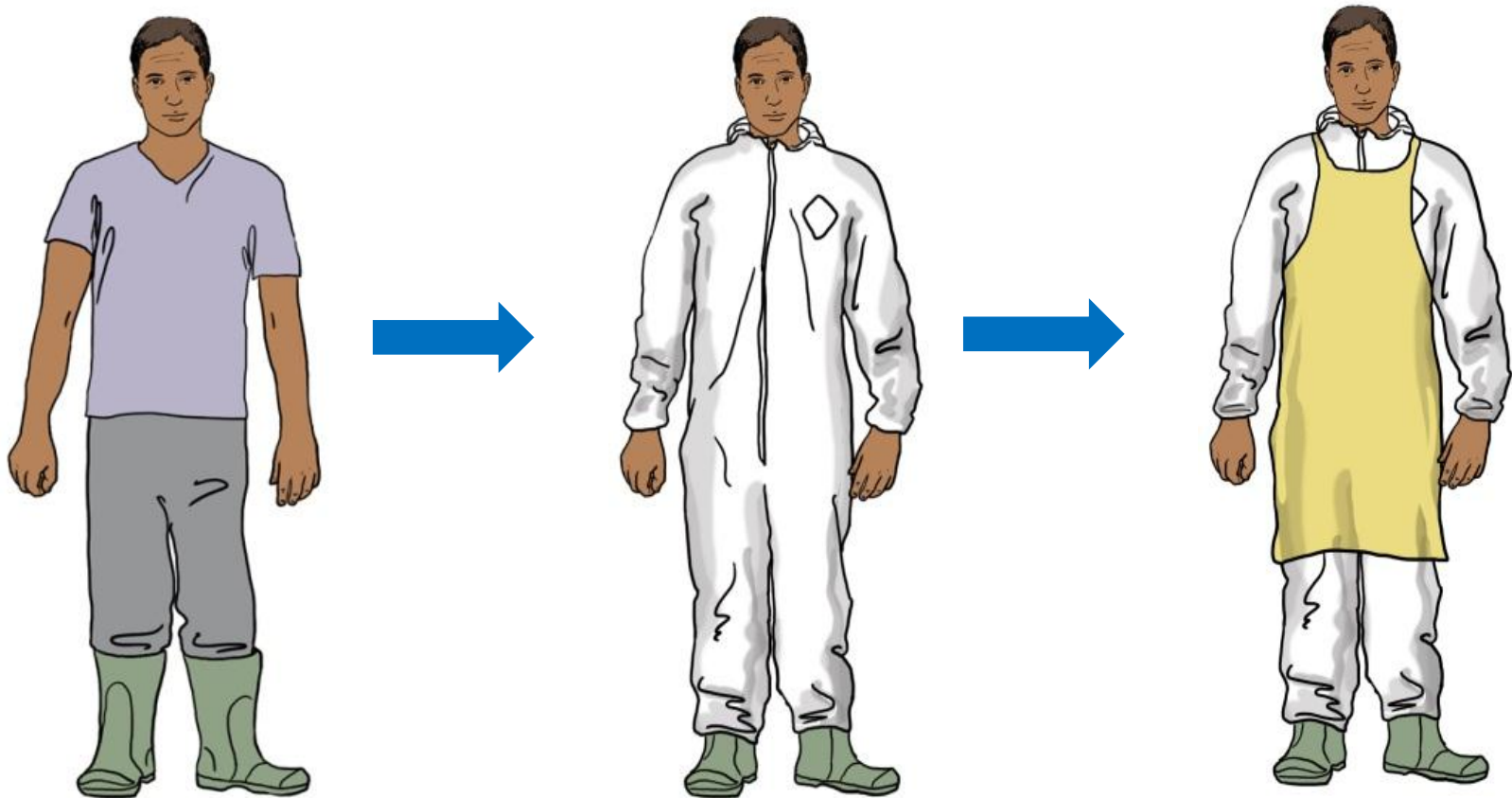


Dry hands thoroughly with single use towel.



## Step 2b: Put on boots, coverall suit and plastic apron

Put on boots followed by coverall suit and plastic apron



## Step 2c: Put on face protection

Put on a  
face mask



Put on safety  
goggles

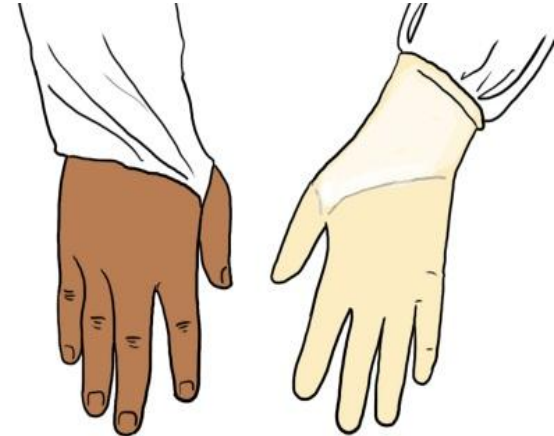


## Step 2d: Hood up



## Step 2e: Put on gloves (over cuff)

- ❑ Create thumb holes on the cuff of the suit



- ❑ Push thumb through hole and then put on glove



## Step 2/5: Put on all PPE

**Important:** A designated assistant wearing gloves should be available to help you.

- This person should stand outside the patient room
- He/She will help you prepare the sample for transport
- He/She will assist you with putting on the personal protective equipment
- He/She will provide any additional equipment you may need

# **Oral swab collection of Ebola patient in 5 steps**

## **Step 3**

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**Collect oral swab from deceased patient**

# Step 3/5: Collect oral swab from deceased patient

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- a.** Prepare waste bags
- b.** Enter into patient room
- c.** Open the oral swab pouch
- d.** Open the mouth
- e.** Swab the mouth
- f.** Place swab into VTM collection tube

# Step 3a: Prepare waste bags

- Infectious waste bags should be placed outside the house in a safe place under the observation of the medical team





# Step 3b: Enter the patient room

- **Take sample collection material**
- **Enter into the room where the deceased person is**



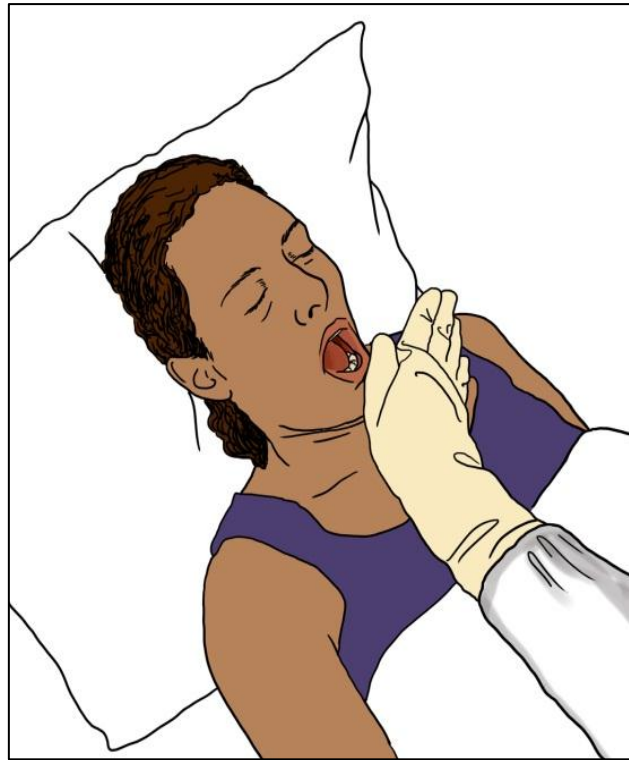
# Step 3c: Open the oral swab pouch

Do not remove the swab from the packaging



# Step 3d: Open the mouth

- Place the palm of hand onto the chin and press down firmly to open the mouth slightly



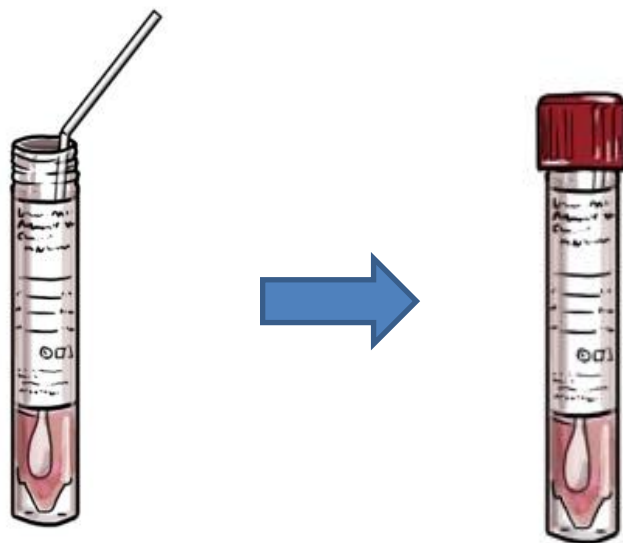
# Step 3e: Swab the mouth

- Remove swab from packaging and insert into the side of the cheek
  - Swab right side
  - Swab left side
- Using circular motions swab the inside of the cheek to collect saliva and epithelial cells



## Step 3f: Place the swab into VTM collection tube

- Place the swab into VTM collection tube
- Ensure correct labelling with patient name
- Snap off the end of the swab at the ribbed breakpoint and close the tube



# **Oral swab collection of Ebola patient in 5 steps**

## **Step 4**

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**Prepare VTM collection tube for transport**

## Step 4/5: Prepare VTM collection tube for transport

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- a. Wipe the VTM tube**
- b. Manage waste**
- c. Protect the sample from breaking or leaking**
- d. Have the designated assistant put the VTM tube into the plastic leak-proof container and close the packaging container**

# Step 4a: Wipe the VTM tube

Wipe the VTM tube using a disposable paper towel





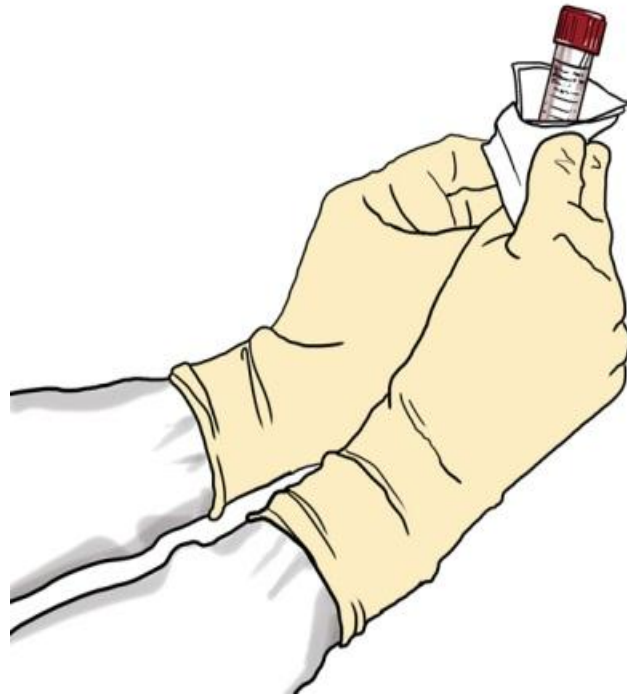
# Step 4b: Manage waste

Place all items that came into contact with tube into the infectious waste bag for destruction.



## Step 4c: Protect the sample from breaking / leaking

Protect the sample from breaking or leaking during transport by wrapping the collection tube in a paper towel.



# Step 4d to 4f: Have the designated assistant put the VTM tube into the plastic leak-proof container and close the packaging container

**Step 4d: Ask the designated assistant to approach the patient's room, without entering.**

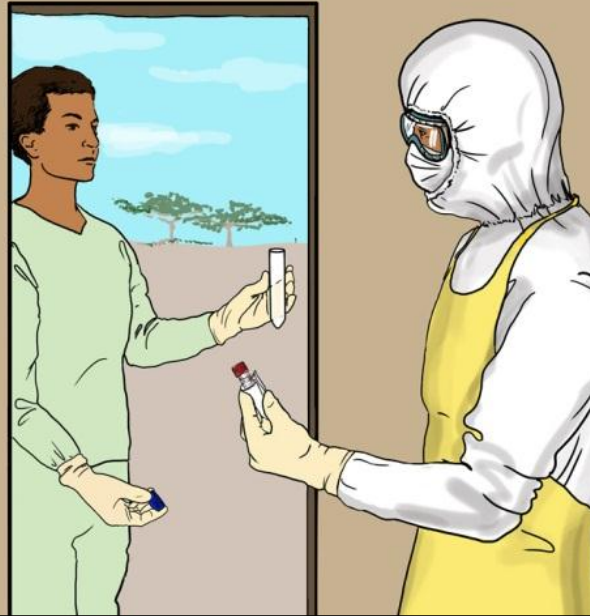
- ✓ This person should have gloves on.
- ✓ This person should come close to you holding the open plastic leak-proof packaging container.
- ✓ This person should not enter the patient's room.

**Step 4e: The person who has collected the VTM tube should put the wrapped VTM tube into the plastic leak-proof packaging container.**

- ✓ Be careful not to touch the outside of the leak-proof plastic tube with gloves.

**Step 4f: Have the designated, gloved assistant tightly close the top of the plastic leak-proof packaging container.**

- ✓ Disinfect with a disinfectant the outer side of the plastic leak-proof packaging container



**Step 4g: The assistant removes gloves and perform hand hygiene.**

## Step 4/5: Prepare VTM collection tube for transport

**Note: The sample is now ready for shipment to the National Central Laboratory.**

Follow Sample Shipment packaging requirements for infectious substances:

- Store samples at room temperature for up to 24 hours.
- If you need to store the sample for one week before shipping, store between 0-5° Celsius.
- If you need to store the sample for more than one week before shipping, store at -20 ° Celsius (or better at -70 ° Celsius if available).
- Avoid freeze-thaw cycles

# **Oral swab collection of Ebola patient in 5 steps**

## **Step 5**

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**Remove PPE and manage waste**

## Step 5: Remove PPE and manage waste

**Remember that PPE may be contaminated and avoid self-contamination during removal!**

- a. Disinfect rubber boots without removing them
- b. Remove apron
- c. Remove gloves, **Perform hand hygiene**
- d. Remove coverall, **Perform hand hygiene**
- e. Remove goggles
- f. Remove mask
- g. ***Perform hand hygiene.***

# Step 5: Remove PPE and manage waste

## Step 5a: Disinfect rubber boots

Disinfect rubber boots without removing them with 0.5% bleach solution. An assistant will spray :



1. Front of boots
2. Turn left and put one foot in front of the other, the assistant will spray the sides.
3. Turn right and put one foot in front of the other, the assistant will spray sides.
4. Face away and the assistant will spray the backs of the boots
5. Lift one foot and the Assistant will spray the bottom. Step back with this foot. Left the opposite foot and the assistant will spray the bottom. Step back.

**Note: Rubber boots should take off at the end of the working day, before going back home.**

# Step 5: Remove PPE and manage waste

## Step 5b: Remove apron

1. Disinfect apron

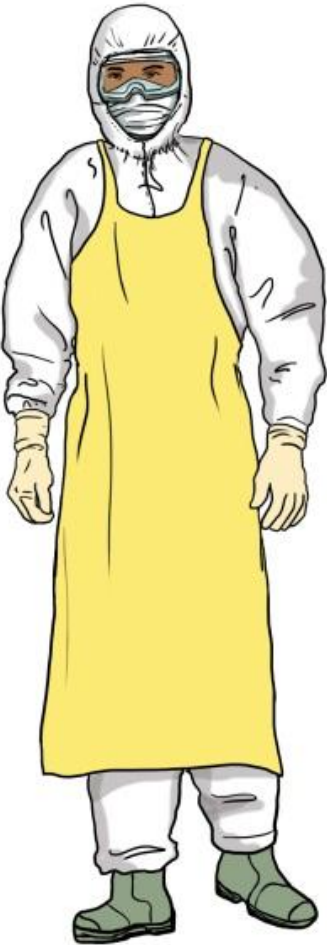
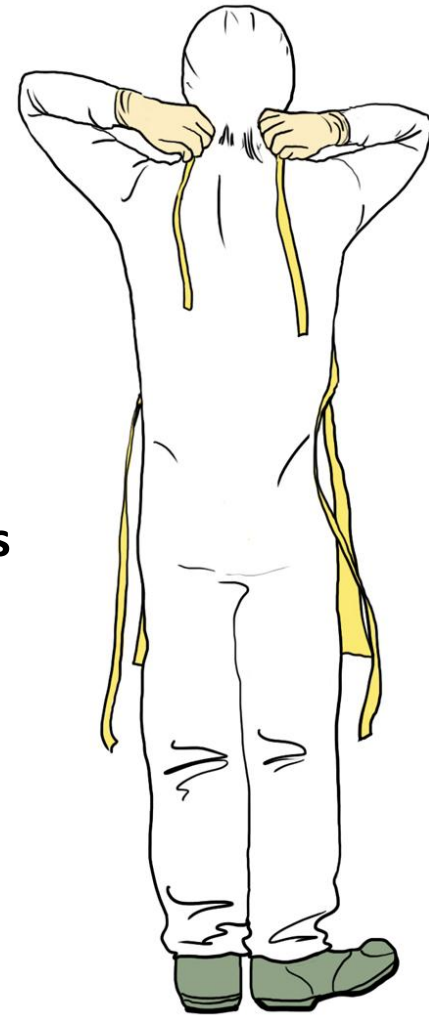
2. Untie the apron, remove it and



- If reusable, discard into infectious waste bag for disinfection
- If single-use, discard into infectious waste bag for destruction



3. Disinfect gloves





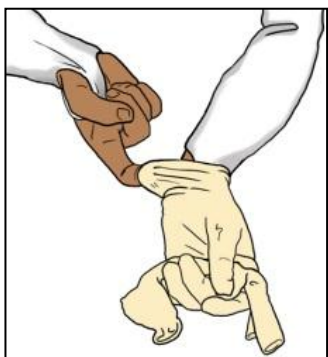
# Step 5: Remove PPE and manage waste

## Step 5c: Remove gloves

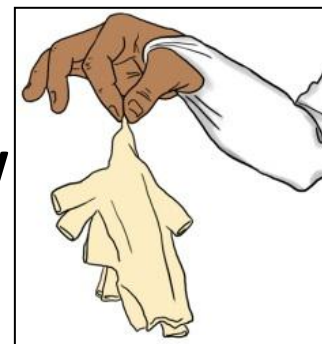
1. Grasp the outer edge of the 1st glove and peel it off.



2. Hold the 1st glove in the gloved hand and drag a bare finger under the 2nd glove.



3. Remove 2nd glove from the inside, creating a "bag" for both gloves and throw it in waste bag for disposal.



4. **Perform hand hygiene**

# Perform hand hygiene

## Alcohol-based handrub (recommended)

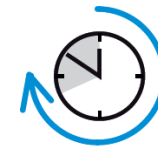
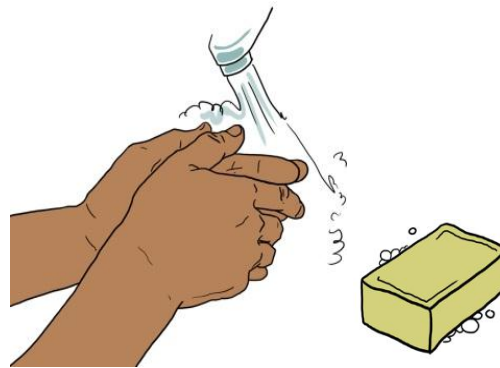
Duration of the entire procedure :

**20-30 seconds**

## OR Clean, running water; Soap; Disposable (paper) towel (recommended)

Duration of the entire procedure :

**40-60 seconds**



## OR Chlorine solution 0.05% (when option above are not available)

# Step 5: Remove PPE and manage waste

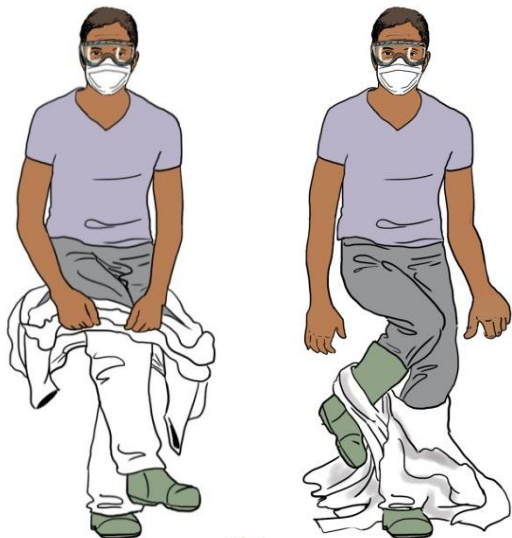
## Step 5d: Remove coverall suit (1/2)

- 1. Unzip the suit starting from the neck moving to the waist.**
- 2. Remove the hood then place hands on the inside of the suit against the chest area and carefully remove the suit from the shoulders towards to the hands.**
- 3. Remove the thumbs from the thumb holes and remove hands from the suit**



## Step 5: Remove PPE and manage waste

### Step 5e to 5f: Remove coverall suit (2/2)



1. Place hands on the inside of the suit, careful not to touch the outer exposed side. Push the suit down towards the boots to just above the ankles.
2. With the boots still on, step out of the suit. Do not use your hands to remove the suit from the bottom of the boots.
3. When the coverall suit is fully removed, the assistant wearing gloves should place the suit in the waste bag for destruction

**4. Perform hand hygiene**

# Perform hand hygiene

## Alcohol-based handrub (recommended)

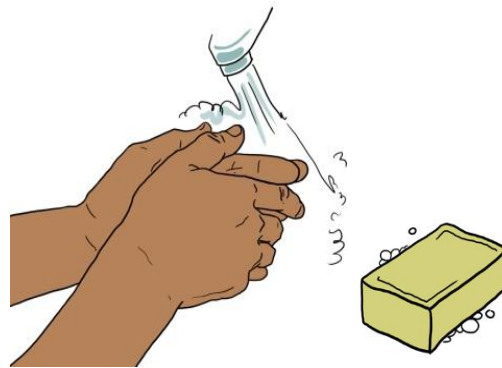
Duration of the entire procedure :

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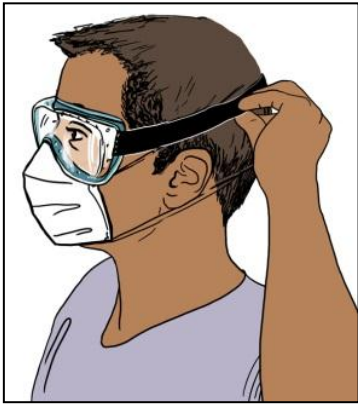
Duration of the entire procedure :

**40-60 seconds**



## OR Chlorine solution 0.05% (when option above are not available)

# Step 5: Remove PPE and manage waste



## Step 5h: Remove Goggles from behind

1. Remove goggles from behind.
2. Place it in a waste bag for disinfection.



## Step 5h: Remove Mask from behind

1. Remove the medical mask from behind, starting with the bottom strap
2. Place it in a waste bag for destruction
3. **Perform Hand Hygiene**



# Perform hand hygiene

## Alcohol-based handrub (recommended)

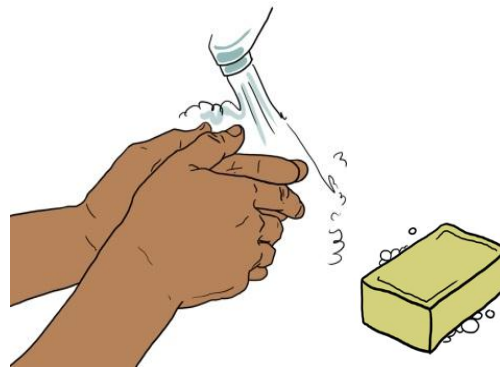
Duration of the entire procedure :

**20-30 seconds**

## OR Clean, running water; Soap; Disposable (paper) towel (recommended)

Duration of the entire procedure :

**40-60 seconds**



## OR Chlorine solution 0.05% (when option above are not available)

# Step 5: Remove PPE and manage waste



Waste bag for  
destruction

- The single-use PPE have been disposed in an appropriate waste bag, prepared by the supervisor. The bag will be closed and disinfected and there after brought for burning to the hospital (or other designated place where single-use equipment will be burned)



Waste bag for  
disinfection

- The reusable disinfected PPE has been placed in a waste bag, closed and disinfected on-site, before bringing this to the hospital or team headquarters for appropriate handling.



# Quick tips: Oral swab collection of Ebola patient

- **When collecting oral swab samples from multiple patients:**
  - ✓ **Change gloves between each patient.**
  - ✓ **Wash hands between each patient.**
  - ✓ **DO NOT WASH GLOVED HANDS.**
  - ✓ **DO NOT REUSE GLOVES.**

# END of the COURSE

## Field Situation :

How to safely

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# Acknowledgements

## Have contributed to this presentation:

- **Blood safety team: Selma Khamassi**
- **WHO Infection, Prevention, and Control team: Benedetta Allegranzi, Sergey Eremin, Cota Vallenias-Bejar-de-Villar, Carmen Pessoa-da-Silva**
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- **WHO Emerging and Epidemic Zoonotic Diseases team: Margaux Mathis, Dhamari Naidoo, Pierre Formenty**

# Thank you

Please send your comments,  
suggestions and  
corrections by email to:

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